

## **Appendix F**

# **Exposure Assessment of Food Dyes in Pregnant Women, Women of Childbearing Age, and Children**

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## FD&C Blue No. 1

**Table A1. FD&C Blue No. 1:** Estimated single and two-day cumulative daily intake (mg/person/day) in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements from Doell et al. (2016).

FD&C Blue No. 1	Total n <sup>b</sup>	n <sup>c</sup>	Typical-exposure scenario (mg/person/day)				High-exposure scenario (mg/person/day)			
			Mean	p50	p75	p95	Mean	p50	p75	p95
Pregnant women										
Day 1	49	45	0.88	0.46	1.2	3.3	1.8	0.82	1.9	8.8
Day 2	31	25	1.1	1.0	1.6	3.0	2.0	1.4	3.7	5.1
2-Day average <sup>a</sup>	42	39	0.8	0.6	1.1	2.3	1.5	1.1	1.9	6.2
Women 18-49 years										
Day 1	1059	942	1.1	0.54	1.3	3.7	2.0	0.93	2.6	6.2
Day 2	798	676	1.3	0.64	1.6	4.6	2.3	1.2	2.9	7.4
2-Day average <sup>a</sup>	1049	955	0.88	0.43	1.2	3.1	1.6	0.73	2.1	5.4
Children (0-<2 years)										
Day 1	177	151	0.49	0.31	0.68	1.8	0.94	0.62	1.3	3.2
Day 2	131	113	1.1	0.30	0.45	2.2	4.0	0.48	1.1	3.7
2-Day average <sup>a</sup>	186	163	0.56	0.22	0.46	1.3	1.7	0.37	0.95	2.3
Children (2-<5 years)										
Day 1	393	357	1.2	0.48	1.0	3.1	3.4	1.0	2.1	5.2
Day 2	307	264	0.82	0.49	1.0	2.5	1.6	1.0	2.2	4.7
2-Day average <sup>a</sup>	370	352	0.74	0.32	0.8	2.3	1.8	0.69	1.7	4.0
Children (5-<9 years)										
Day 1	571	537	1.2	0.69	1.4	3.1	2.2	1.5	2.7	6.1
Day 2	399	376	1.2	0.64	1.1	3.5	2.2	1.3	2.4	6.4
2-Day average <sup>a</sup>	503	489	1.0	0.53	1.0	3.3	1.8	1.1	2.2	5.6
Children (9-<16 years)										
Day 1	914	827	1.7	0.83	1.5	4.5	4.3	1.9	3.3	9.6
Day 2	662	600	1.4	0.73	1.3	3.7	3.0	1.7	3.2	8.8
2-Day average <sup>a</sup>	848	806	1.3	0.68	1.3	3.7	2.9	1.5	2.8	6.8
Youth (16-18 years)										
Day 1	346	289	1.5	0.69	1.4	5.1	2.7	1.2	3.3	9.3
Day 2	225	196	0.95	0.59	1.5	2.9	1.9	1.2	2.3	6.3
2-Day average <sup>a</sup>	314	291	0.85	0.46	0.89	2.8	1.6	0.91	2.0	5.3

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of “eaters” in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of “eaters” per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A1** presents single and two-day average cumulative daily FD&C Blue No.1 intake estimates (from typical- and high-exposure scenarios) for US pregnant women, women of childbearing years, and children aged 0 to 18 years.

Two-day average results (Typical-exposure scenario): Results for FD&C Blue No. 1 from the typical-exposure scenario showed the highest median two-day average intake estimate for children 9 to <16 years old (0.68 mg/person/day), and the highest 95th percentile two-day average intake estimate for children 9 to <16 years old (3.7 mg/person/day).

Two-day average results (High-exposure scenario). Results for FD&C Blue No. 1 from the high-exposure scenario showed the highest median two-day average intake estimate for children 9 to <16 years old (1.5 mg/person/day), and the highest 95th percentile two-day average intake estimate for children 9 to <16 years old (6.8 mg/person/day).

## FD&C Blue No. 2

**Table A2.** Estimated single and two-day cumulative daily intake (mg/person/day) of FD&C Blue No. 2 in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements from Doell et al. (2016).

FD&C Blue No. 2	Total n <sup>b</sup>	n <sup>c</sup>	Typical-exposure scenario (mg/person/day)				High-exposure scenario (mg/person/day)			
			Mean	p50	p75	p95	Mean	p50	p75	p95
Pregnant women										
Day 1	49	23	0.62	0.15	0.70	3.5	1.4	0.28	1.4	9.9
Day 2	31	18	0.63	0.22	0.99	2.5	1.2	0.36	0.99	4.9
2-Day average <sup>a</sup>	42	25	0.53	0.15	0.66	2.2	1.1	0.28	1.2	4.9
Women 18-49 years										
Day 1	1059	572	0.58	0.15	0.44	1.8	0.92	0.28	0.85	3.4
Day 2	798	428	0.64	0.21	0.73	2.5	1.1	0.29	1.3	4.9
2-Day average <sup>a</sup>	1049	651	0.41	0.12	0.39	1.3	0.68	0.21	0.66	2.3
Children (0-<2 years)										
Day 1	177	91	0.56	0.12	0.33	2.4	0.69	0.14	0.34	3.7
Day 2	131	68	0.42	0.10	0.31	2.3	0.99	0.11	0.35	2.9
2-Day average <sup>a</sup>	186	108	0.34	0.08	0.22	1.3	0.55	0.09	0.31	2.4
Children (2-<5 years)										
Day 1	393	230	0.39	0.08	0.53	1.3	0.83	0.09	0.63	3.7
Day 2	307	157	0.54	0.17	0.76	2.2	0.84	0.21	1.1	3.9
2-Day average <sup>a</sup>	370	238	0.31	0.09	0.44	1.3	0.55	0.12	0.6	2.3
Children (5-<9 years)										
Day 1	571	342	0.55	0.14	0.76	2.2	1.0	0.17	1.1	5.3
Day 2	399	233	0.62	0.17	1.0	2.2	1.1	0.21	1.4	4.1
2-Day average <sup>a</sup>	503	361	0.43	0.19	0.69	1.5	0.74	0.23	1.0	3.0
Children (9-<16 years)										
Day 1	914	501	1.1	0.22	1.2	2.8	1.9	0.33	1.9	7.8
Day 2	662	348	1.1	0.49	1.7	3.3	1.9	0.63	2.6	7.8
2-Day average <sup>a</sup>	848	571	0.74	0.34	0.99	2.2	1.3	0.49	1.6	4.0
Youth (16-18 years)										
Day 1	346	160	0.75	0.20	1.0	3.3	1.2	0.24	1.7	6.8
Day 2	225	111	0.68	0.22	0.61	3.0	1.2	0.33	0.92	6.9
2-Day average <sup>a</sup>	314	189	0.44	0.11	0.61	1.7	0.71	0.19	0.92	3.9

<sup>a</sup>The two-day average estimates include individuals who completed both the Day 1 and Day 2 NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of "eaters" in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of "eaters" per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A2** presents 1-day and two-day cumulative daily FD&C Blue No. 2 intake estimates (from typical- and high-exposure scenarios) for US pregnant women, women of childbearing years, and children aged 0 to 18 years.

Results for FD&C Blue No. 2 from the typical-exposure scenario showed the highest median two-day intake estimate for children 9 to <16 years old (0.34 mg/person/day), and the highest 95th percentile two-day intake estimate for pregnant women and children 9 to <16 years old (2.2 mg/person/day).

Results for FD&C Blue No. 2 from the high-exposure scenario showed the highest median two-day intake estimate for children 9 to <16 years old (0.49 mg/person/day), and the highest 95th percentile two-day intake estimate for pregnant women (4.9 mg/person/day).

### FD&C Green No. 3

**Table A3.** FD&C Green No. 3: Estimated single and two-day cumulative daily intake estimates (mg/person/day) in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements from Doell et al. (2016).

FD&C Green No. 3	Total n <sup>b</sup>	n <sup>c</sup>	Typical-exposure scenario (mg/person/day)				High-exposure scenario (mg/person/day)			
			Mean	p50	p75	p95	Mean	p50	p75	p95
Pregnant women										
Day 1	49	3	0.15	0.13	0.19	0.19	0.15	0.13	0.19	0.19
Day 2	31	2	0.25	0.23	0.30	0.30	0.25	0.23	0.30	0.30
2-Day average <sup>a</sup>	42	4	0.11	0.07	0.11	0.25	0.11	0.07	0.11	0.25
Women 18-49 years										
Day 1	1059	102	0.12	0.08	0.15	0.35	0.12	0.08	0.15	0.35
Day 2	798	73	0.17	0.15	0.23	0.44	0.17	0.15	0.23	0.44
2-Day average <sup>a</sup>	1049	145	0.08	0.07	0.09	0.23	0.08	0.07	0.09	0.23
Children (0-<2 years)										
Day 1	177	13	0.03	0.04	0.07	0.07	0.03	0.04	0.07	0.07
Day 2	131	9	0.05	0.04	0.09	0.09	0.05	0.04	0.09	0.09
2-Day average <sup>a</sup>	186	17	0.02	0.02	0.04	0.04	0.02	0.02	0.04	0.04
Children (2-<5 years)										
Day 1	393	32	0.07	0.07	0.08	0.15	0.07	0.07	0.08	0.15
Day 2	307	25	0.08	0.07	0.12	0.24	0.08	0.07	0.12	0.24
2-Day average <sup>a</sup>	370	42	0.04	0.04	0.06	0.11	0.04	0.04	0.06	0.11
Children (5-<9 years)										
Day 1	571	69	0.10	0.07	0.15	0.24	0.10	0.07	0.15	0.24
Day 2	399	52	0.11	0.10	0.15	0.24	0.11	0.10	0.15	0.24
2-Day average <sup>a</sup>	503	89	0.07	0.06	0.08	0.15	0.07	0.06	0.08	0.15
Children (9-<16 years)										
Day 1	914	103	0.15	0.12	0.19	0.32	0.15	0.12	0.19	0.32
Day 2	662	76	0.17	0.15	0.22	0.36	0.17	0.15	0.22	0.36
2-Day average <sup>a</sup>	848	144	0.09	0.07	0.11	0.21	0.09	0.07	0.11	0.21
Youth (16-18 years)										
Day 1	346	20	0.14	0.15	0.17	0.32	0.14	0.15	0.17	0.32
Day 2	225	13	0.18	0.12	0.22	0.52	0.18	0.12	0.22	0.52
2-Day average <sup>a</sup>	314	29	0.08	0.07	0.10	0.24	0.08	0.07	0.10	0.24

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of “eaters” in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of “eaters” per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A3** presents 1-day and two-day cumulative daily FD&C Green No. 3 intake estimates (from typical- and high-exposure scenarios) for US pregnant women, women of childbearing years, and children aged 0 to 18 years.

Results for FD&C Green No. 3 from the typical-exposure scenario showed the highest median two-day intake estimate for pregnant women, women 18-49 years old, children 9 to <16 years old, and children 16-18 years old (0.07 mg/person/day), and the highest 95th percentile two-day intake estimate for pregnant women (0.25 mg/person/day).

Results for FD&C Green No. 3 from the high-exposure scenario showed the highest median two-day intake estimate for pregnant women, women 18-49 years old, children 9 to <16 years old, and children 16-18 years old (0.07 mg/person/day), and the highest 95th percentile two-day intake estimate for pregnant women (0.25 mg/person/day).

### FD&C Red No. 3

**Table A4.** Estimated single and two-day cumulative daily intake (mg/person/day) of FD&C Red No. 3 in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements from Doell et al. (2016).

FD&C Red No. 3	Total n <sup>b</sup>	n <sup>c</sup>	Typical-exposure scenario (mg/person/day)				High-exposure scenario (mg/person/day)			
			Mean	p50	p75	p95	Mean	p50	p75	p95
Pregnant women										
Day 1	49	20	2.3	1.1	1.8	17.2	4.6	1.5	2.6	50.4
Day 2	31	18	1.4	1.5	1.6	2.8	1.7	1.5	2.3	4.6
2-Day average <sup>a</sup>	42	25	1.5	1.1	1.5	8.6	2.7	1.3	2.3	25.2
Women 18-49 years										
Day 1	1059	524	2.0	0.76	2.3	5.5	2.8	1.0	2.4	6.3
Day 2	798	398	2.2	0.83	2.3	8.0	2.7	1.5	2.6	8.0
2-Day average <sup>a</sup>	1049	596	1.4	0.48	1.4	5.6	1.8	0.76	1.7	6.3
Children (0-<2 years)										
Day 1	177	72	0.31	0.13	0.48	1.3	0.36	0.23	0.50	1.3
Day 2	131	53	5.6	0.13	0.44	52.7	15.6	0.17	0.50	86.1
2-Day average <sup>a</sup>	186	84	1.8	0.10	0.33	0.7	4.9	0.10	0.36	0.8
Children (2-<5 years)										
Day 1	393	202	3.1	0.21	0.44	3.2	7.8	0.21	0.63	3.3
Day 2	307	127	0.86	0.22	0.54	2.6	1.3	0.25	0.76	3.2
2-Day average <sup>a</sup>	370	216	1.1	0.12	0.38	1.4	2.5	0.15	0.42	1.7
Children (5-<9 years)										
Day 1	571	321	1.8	0.22	0.78	2.3	2.9	0.23	1.0	3.4
Day 2	399	209	2.8	0.29	0.67	4.2	4.5	0.36	1.1	4.6
2-Day average <sup>a</sup>	503	350	1.7	0.17	0.50	2.9	2.7	0.20	0.85	5.1
Children (9-<16 years)										
Day 1	914	458	4.3	0.41	0.90	9.3	9.8	0.48	1.6	9.3
Day 2	662	303	3.6	0.47	1.1	6.1	6.5	0.65	2.1	7.2
2-Day average <sup>a</sup>	848	538	2.5	0.31	0.76	6.6	5.0	0.42	1.2	12.3
Youth (16-18 years)										
Day 1	346	131	3.2	0.38	1.3	11.5	4.6	0.38	2.3	11.5
Day 2	225	100	1.0	0.45	1.5	3.1	1.3	0.71	2.3	4.6
2-Day average <sup>a</sup>	314	164	1.1	0.26	0.9	3.4	1.5	0.35	1.1	3.7

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of “eaters” in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of “eaters” per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A4** presents 1-day and two-day cumulative daily FD&C Red No. 3 intake estimates (from typical- and high-exposure scenarios) for US pregnant women, women of childbearing years, and children aged 0 to 18 years.

Results for FD&C Red No. 3 from the typical-exposure scenario showed the highest median two-day intake estimate for pregnant women (1.1 mg/person/day), and the highest 95th percentile two-day intake estimate for pregnant women (8.6 mg/person/day).

Results for FD&C Red No. 3 from the high-exposure scenario showed the highest median two-day intake estimate for pregnant women (1.3 mg/person/day), and the highest 95th percentile two-day intake estimate pregnant women (25.2 mg/person/day).



## FD&C Red No. 40

**Table A5.** FD&C Red No. 40: Estimated single and two-day cumulative daily intake estimates (mg/person/day) in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements from Doell et al. (2016).

FD&C Red No. 40	Total n <sup>b</sup>	n <sup>c</sup>	Typical-exposure scenario (mg/person/day)				High-exposure scenario (mg/person/day)			
			Mean	p50	p75	p95	Mean	p50	p75	p95
Pregnant women										
Day 1	49	45	10.6	3.3	15.2	42.9	20.6	5.4	22.8	94.8
Day 2	31	27	5.6	1.1	13.8	17.8	18.6	2.0	17.8	145.3
2-Day average <sup>a</sup>	42	39	6.8	3.1	7.6	30.3	16.2	4.8	24.2	70.2
Women 18-49 years										
Day 1	1059	993	8.0	3.8	11.8	28.1	16.9	5.7	21.0	74.0
Day 2	798	727	7.7	3.6	10.9	26.9	19.6	5.8	20.1	94.5
2-Day average <sup>a</sup>	1049	988	6.0	2.7	8.7	21.1	13.9	4.6	17.6	52.3
Children (0-<2 years)										
Day 1	177	166	3.2	1.4	4.3	9.9	6.2	2.4	6.4	25.7
Day 2	131	121	2.7	1.2	3.0	9.5	5.5	1.8	6.5	23.5
2-Day average <sup>a</sup>	186	175	2.2	0.89	3.1	9.0	4.3	1.2	6.2	19.3
Children (2-<5 years)										
Day 1	393	371	4.7	2.4	6.8	13.6	10.3	3.7	13.4	48.4
Day 2	307	270	4.7	2.8	6.2	13.4	11.4	4.8	12.6	47.4
2-Day average <sup>a</sup>	370	358	3.6	2.1	5.0	11.1	8.2	4.3	10.3	29.7
Children (5-<9 years)										
Day 1	571	551	7.7	5.6	10.7	25.1	18.2	9.9	24.3	65.9
Day 2	399	380	6.5	4.2	8.6	21.9	19.1	6.5	18.1	88.1
2-Day average <sup>a</sup>	503	493	5.9	4.3	7.8	16.9	15.5	7.8	19.9	58.6
Children (9-<16 years)										
Day 1	914	865	9.8	7.1	13.1	29.1	25.1	12.5	28.2	103.8
Day 2	662	624	9.1	6.6	12.6	26.9	25.8	12.1	26.0	117.4
2-Day average <sup>a</sup>	848	827	7.8	5.9	10.7	22.9	20.8	11.5	25.2	80.2
Youth (16-18 years)										
Day 1	346	319	9.1	5.5	12.7	29.5	19.6	7.8	25.6	82.1
Day 2	225	204	7.3	3.7	9.2	26.9	19.1	4.7	22.3	83.8
2-Day average <sup>a</sup>	314	305	6.0	3.4	8.6	22.4	14.1	5.4	17.7	52.1

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of “eaters” in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of “eaters” per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A5** presents 1-day and two-day cumulative daily FD&C Red No. 40 intake estimates (from typical- and high-exposure scenarios) for US pregnant women, women of childbearing years, and children aged 0 to 18 years.

Results for FD&C Red No. 40 from the typical-exposure scenario showed the highest median two-day intake estimate for children 9 to <16 years old (5.9 mg/person/day), and the highest 95th percentile two-day intake estimate for pregnant women (30.3 mg/person/day).

Results for FD&C Red No. 40 from the high-exposure scenario showed the highest median two-day intake estimate for children 9 to <16 years old (11.5 mg/person/day), and the highest 95th percentile two-day intake estimate for children 9 to <16 years old (80.2 mg/person/day).

## FD&C Yellow No. 5

**Table A6.** Estimated two-day cumulative daily intake (mg/person/day) of FD&C Yellow No. 5 in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements from Doell et al. (2016).

FD&C Yellow No. 5	Total n <sup>b</sup>	n <sup>c</sup>	Typical-exposure scenario (mg/person/day)				High-exposure scenario (mg/person/day)			
			Mean	p50	p75	p95	Mean	p50	p75	p95
Pregnant women										
Day 1	49	43	3.8	1.5	3.8	10.2	5.7	2.1	7.6	17.0
Day 2	31	29	2.1	1.9	2.6	5.8	3.6	2.3	4.2	17.3
2-Day average <sup>a</sup>	42	36	2.4	1.5	4.0	6.0	4.1	2.4	5.6	11.5
Women 18-49 years										
Day 1	1059	957	3.6	1.8	4.3	11.8	6.0	2.8	7.6	23.9
Day 2	798	721	3.4	1.6	3.8	13.8	6.0	2.5	6.6	21.8
2-Day average <sup>a</sup>	1049	982	2.6	1.3	3.2	9.7	4.5	1.9	5.5	16.8
Children (0-<2 years)										
Day 1	177	169	1.4	0.77	1.9	4.7	2.4	1.2	3.2	8.3
Day 2	131	121	2.0	0.88	2.0	8.4	2.9	1.7	3.5	10.5
2-Day average <sup>a</sup>	186	176	1.3	0.74	1.5	4.9	2.0	1.1	2.3	8.4
Children (2-<5 years)										
Day 1	393	380	2.2	1.0	2.3	9.9	3.5	1.7	4.8	12.0
Day 2	307	292	2.5	1.4	2.7	8.7	3.9	2.1	4.5	14.2
2-Day average <sup>a</sup>	370	359	1.9	1.0	2.6	5.7	3.0	1.7	4.0	9.6
Children (5-<9 years)										
Day 1	571	549	2.7	1.5	3.4	8.9	4.5	2.6	5.6	14.8
Day 2	399	383	2.8	1.3	3.1	10.4	4.7	2.3	5.5	17.4
2-Day average <sup>a</sup>	503	497	2.3	1.4	2.9	7.6	3.8	2.3	5.2	11.3
Children (9-<16 years)										
Day 1	914	851	4.3	2.1	5.2	16.5	7.9	3.1	9.4	31.6
Day 2	662	629	3.6	1.8	4.1	14.2	6.4	2.9	8.1	23.0
2-Day average <sup>a</sup>	848	821	3.2	1.8	4.1	10.7	5.7	3.1	6.8	18.9
Youth (16-18 years)										
Day 1	346	305	4.1	1.9	5.4	14.8	6.8	2.4	8.3	23.5
Day 2	225	208	3.2	1.8	3.8	13.4	5.5	2.8	6.7	18.5
2-Day average <sup>a</sup>	314	297	2.7	1.5	3.6	9.3	4.5	2.4	5.7	15.5

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of “eaters” in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of “eaters” per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A6** presents 1-day and two-day cumulative daily FD&C Yellow No. 5 intake estimates (from typical- and high-exposure scenarios) for US pregnant women, women of childbearing years, and children aged 0 to 18 years.

Results for FD&C Yellow No. 5 from the typical-exposure scenario showed the highest median two-day intake estimate for children 9 to <16 years old (1.8 mg/person/day), and the highest 95th percentile two-day intake estimate for children 9 to <16 years old (10.7 mg/person/day).

Results for FD&C Yellow No. 5 from the high-exposure scenario showed the highest median two-day intake estimate for children 9 to <16 years old (3.1 mg/person/day), and the highest 95th percentile two-day intake estimate for children 9 to <16 years old (18.9 mg/person/day).

## FD&C Yellow No. 6

**Table A7.** Estimated two-day cumulative daily intake (mg/person/day) of FD&C Yellow No. 6 in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements from Doell et al. (2016).

FD&C Yellow No. 6	Total n <sup>b</sup>	n <sup>c</sup>	Typical-exposure scenario (mg/person/day)				High-exposure scenario (mg/person/day)			
			Mean	p50	p75	p95	Mean	p50	p75	p95
Pregnant women										
Day 1	49	40	4.1	1.2	7.1	19.9	6.2	1.6	7.6	35.5
Day 2	31	27	2.2	0.57	1.8	9.8	3.5	1.2	2.9	15.9
2-Day average <sup>a</sup>	42	37	2.6	0.84	7.0	23.9	3.9	0.93	7.6	39.0
Women 18-49 years										
Day 1	1059	908	4.4	1.0	6.1	19.9	6.1	1.3	9.0	26.2
Day 2	798	697	3.6	0.93	4.6	14.1	4.9	1.2	6.3	20.9
2-Day average <sup>a</sup>	1049	942	3.1	0.89	8.4	27.0	4.3	1.1	12.0	37.7
Children (0-<2 years)										
Day 1	177	160	1.5	0.67	1.9	5.6	2.4	0.81	2.7	9.8
Day 2	131	120	2.1	0.89	2.7	7.3	5.0	1.1	4.2	10.0
2-Day average <sup>a</sup>	186	170	1.4	0.74	1.8	4.4	2.8	0.88	2.2	8.4
Children (2-<5 years)										
Day 1	393	364	3.0	0.87	3.6	13.7	5.6	1.3	5.3	18.0
Day 2	307	283	2.5	1.1	3.3	9.8	3.6	1.5	4.2	14.9
2-Day average <sup>a</sup>	370	360	2.2	1.2	2.7	7.5	3.5	1.6	3.9	10.6
Children (5-<9 years)										
Day 1	571	540	3.7	2.0	5.3	12.7	5.6	2.8	8.5	19.1
Day 2	399	378	2.9	1.2	3.7	11.9	4.1	1.6	5.9	15.2
2-Day average <sup>a</sup>	503	495	2.7	1.4	4.2	8.2	4.0	2.1	6.1	13.1
Children (9-<16 years)										
Day 1	914	841	5.3	2.7	7.6	17.1	8.7	3.9	11.1	25.1
Day 2	662	621	4.4	1.7	5.7	18.2	6.5	2.4	8.9	23.7
2-Day average <sup>a</sup>	848	821	4.0	2.3	5.6	13.4	6.2	3.3	8.5	19.2
Youth (16-18 years)										
Day 1	346	302	4.6	1.7	7.8	17.0	6.6	2.1	10.5	25.3
Day 2	225	204	3.6	0.93	4.8	14.4	5.4	1.3	6.7	20.2
2-Day average <sup>a</sup>	314	294	3.0	1.0	3.9	12.1	4.3	1.1	6.3	16.8

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of “eaters” in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of “eaters” per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A7** presents 1-day and two-day cumulative daily FD&C Yellow No. 6 intake estimates (from typical- and high-exposure scenarios) for US pregnant women, women of childbearing years, and children aged 0 to 18 years.

Results for FD&C Yellow No. 6 from the typical-exposure scenario showed the highest median two-day intake estimate for children 9 to <16 years old (2.3 mg/person/day), and the highest 95th percentile two-day intake estimate for women 18-49 years old (27.0 mg/person/day).

Results for FD&C Yellow No. 6 from the high-exposure scenario showed the highest median two-day intake estimate for children 9 to <16 years old (3.3 mg/person/day), and the highest 95th percentile two-day intake estimate for pregnant women (39.0 mg/person/day).

**Table A8.** FD&C Blue No.1: Estimated single and two-day cumulative daily exposure (mg/kg/day) in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements.

FD&C Blue No. 1			Typical-exposure scenario (mg/kg/day)					High-exposure scenario (mg/kg/day)				
	Total n <sup>b</sup>	n <sup>c</sup>	Mean	Median	75th%	95th%	Max	Mean	Median	75th%	95th%	Max
<b>Pregnant women</b>												
Day 1	48	44	0.01	0.006	0.018	0.04	0.04	0.02	0.01	0.02	0.10	0.12
Day 2	31	25	0.02	0.01	0.02	0.05	0.06	0.03	0.02	0.04	0.06	0.09
2-Day average <sup>a</sup>	42	39	0.01	0.005	0.015	0.03	0.04	0.02	0.01	0.02	0.06	0.09
<b>Women 18-49 years</b>												
Day 1	1048	933	0.02	0.008	0.019	0.06	0.84	0.03	0.01	0.03	0.09	4.14
Day 2	792	671	0.02	0.009	0.022	0.06	0.58	0.03	0.02	0.04	0.10	1.46
2-Day average <sup>a</sup>	1040	946	0.01	0.006	0.015	0.04	0.42	0.02	0.01	0.03	0.08	2.08
<b>Children (0-&lt;2 years)</b>												
Day 1	177	151	0.04	0.03	0.06	0.14	0.29	0.09	0.05	0.12	0.29	0.58
Day 2	131	113	0.11	0.02	0.04	0.21	4.41	0.39	0.05	0.11	0.35	21.8
2-Day average <sup>a</sup>	186	163	0.05	0.02	0.04	0.12	2.22	0.16	0.04	0.09	0.22	11.0
<b>Children (2-&lt;5 years)</b>												
Day 1	388	353	0.08	0.03	0.07	0.22	3.14	0.22	0.06	0.14	0.39	15.3
Day 2	300	259	0.05	0.03	0.07	0.15	1.10	0.10	0.06	0.15	0.32	1.37
2-Day average <sup>a</sup>	363	346	0.05	0.02	0.06	0.15	1.66	0.12	0.04	0.11	0.30	7.85
<b>Children (5-&lt;9 years)</b>												
Day 1	569	536	0.05	0.03	0.05	0.13	0.84	0.09	0.06	0.10	0.23	1.12
Day 2	397	374	0.05	0.02	0.04	0.14	1.18	0.09	0.05	0.10	0.29	1.49
2-Day average <sup>a</sup>	501	487	0.04	0.02	0.04	0.15	0.63	0.07	0.04	0.08	0.26	0.79
<b>Children (9-&lt;16 years)</b>												
Day 1	908	822	0.04	0.02	0.03	0.10	3.80	0.09	0.04	0.07	0.19	18.7
Day 2	660	598	0.03	0.01	0.03	0.11	0.84	0.06	0.03	0.07	0.18	4.13
2-Day average <sup>a</sup>	843	801	0.03	0.01	0.03	0.09	1.92	0.06	0.03	0.06	0.16	9.40
<b>Youth (16-18 years)</b>												
Day 1	342	286	0.02	0.01	0.02	0.09	0.43	0.04	0.02	0.04	0.15	0.99
Day 2	222	194	0.01	0.008	0.02	0.05	0.11	0.03	0.02	0.04	0.09	0.21
2-Day average <sup>a</sup>	310	288	0.01	0.007	0.01	0.05	0.22	0.02	0.01	0.03	0.09	0.51

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of “eaters” in NHANES within demographic category that consumed 1 food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of “eaters” per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A9.** FD&C Blue No. 2: Estimated single and two-day cumulative daily exposure (mg/kg/day) in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements.

			Typical-exposure scenario (mg/kg/day)					High-exposure scenario (mg/kg/day)				
	Total n <sup>b</sup>	n <sup>c</sup>	Mean	Median	75th%	95th%	Max	Mean	Median	75th%	95th%	Max
<b>Pregnant women</b>												
Day 1	48	23	0.008	0.002	0.008	0.05	0.05	0.02	0.004	0.02	0.15	0.15
Day 2	31	18	0.008	0.003	0.013	0.03	0.04	0.02	0.005	0.01	0.07	0.10
2-Day average <sup>a</sup>	42	25	0.007	0.002	0.009	0.03	0.03	0.02	0.004	0.02	0.07	0.10
<b>Women 18-49 years</b>												
Day 1	1048	566	0.007	0.002	0.006	0.03	0.25	0.01	0.003	0.01	0.05	0.47
Day 2	792	426	0.009	0.003	0.01	0.03	0.21	0.02	0.005	0.02	0.07	0.34
2-Day average <sup>a</sup>	1040	645	0.005	0.002	0.006	0.02	0.12	0.009	0.003	0.009	0.04	0.23
<b>Children (0-&lt;2 years)</b>												
Day 1	177	91	0.05	0.01	0.03	0.24	0.95	0.06	0.01	0.03	0.34	0.95
Day 2	131	68	0.04	0.009	0.03	0.20	0.49	0.09	0.01	0.04	0.24	2.40
2-Day average <sup>a</sup>	186	108	0.03	0.007	0.02	0.11	0.49	0.05	0.009	0.031	0.24	1.21
<b>Children (2-&lt;5 years)</b>												
Day 1	388	227	0.02	0.005	0.03	0.08	0.34	0.05	0.005	0.04	0.20	1.66
Day 2	300	155	0.03	0.009	0.05	0.14	0.26	0.06	0.01	0.06	0.21	0.54
2-Day average <sup>a</sup>	363	235	0.02	0.006	0.03	0.08	0.18	0.04	0.007	0.04	0.13	0.84
<b>Children (5-&lt;9 years)</b>												
Day 1	569	341	0.02	0.006	0.03	0.09	0.22	0.04	0.007	0.05	0.21	0.51
Day 2	397	232	0.03	0.007	0.04	0.08	0.25	0.05	0.009	0.05	0.24	0.51
2-Day average <sup>a</sup>	501	360	0.02	0.007	0.03	0.06	0.23	0.03	0.01	0.04	0.13	0.51
<b>Children (9-&lt;16 years)</b>												
Day 1	908	500	0.02	0.005	0.03	0.06	0.91	0.04	0.007	0.04	0.14	2.05
Day 2	660	348	0.02	0.009	0.04	0.08	0.83	0.04	0.01	0.07	0.14	0.83
2-Day average <sup>a</sup>	843	570	0.02	0.006	0.02	0.05	0.46	0.03	0.008	0.04	0.09	1.03
<b>Youth (16-18 years)</b>												
Day 1	342	159	0.01	0.002	0.02	0.04	0.17	0.02	0.004	0.02	0.09	0.28
Day 2	222	110	0.01	0.004	0.01	0.04	0.11	0.02	0.005	0.02	0.09	0.23
2-Day average <sup>a</sup>	310	187	0.007	0.002	0.009	0.03	0.08	0.01	0.003	0.014	0.06	0.12

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of “eaters” in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of “eaters” per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.



**Table A10.** FD&C Green No. 3: Estimated single and two-day cumulative daily exposure (mg/kg/day) in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements.

FD&C Green No. 3			Typical-exposure scenario (mg/kg/day)					High-exposure scenario (mg/kg/day)				
	Total n <sup>b</sup>	n <sup>c</sup>	Mean	Median	75th%	95th%	Max	Mean	Median	75th%	95th%	Max
<b>Pregnant women</b>												
Day 1	48	3	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Day 2	31	2	0.003	0.003	0.004	0.004	0.004	0.003	0.003	0.004	0.004	0.004
2-Day average <sup>a</sup>	42	4	0.001	0.001	0.001	0.003	0.003	0.001	0.001	0.001	0.003	0.003
<b>Women 18-49 years</b>												
Day 1	1048	102	0.002	0.001	0.002	0.004	0.008	0.002	0.001	0.002	0.004	0.008
Day 2	792	73	0.002	0.002	0.003	0.005	0.02	0.002	0.002	0.003	0.005	0.02
2-Day average <sup>a</sup>	1040	145	0.001	0.001	0.001	0.003	0.001	0.001	0.001	0.001	0.003	0.01
<b>Children (0-&lt;2 years)</b>												
Day 1	177	13	0.003	0.004	0.006	0.007	0.007	0.003	0.004	0.006	0.007	0.007
Day 2	131	9	0.005	0.003	0.009	0.009	0.03	0.005	0.003	0.009	0.009	0.03
2-Day average <sup>a</sup>	186	17	0.002	0.002	0.003	0.004	0.01	0.002	0.002	0.003	0.004	0.01
<b>Children (2-&lt;5 years)</b>												
Day 1	388	32	0.005	0.005	0.005	0.01	0.01	0.005	0.005	0.005	0.01	0.01
Day 2	300	25	0.005	0.004	0.008	0.01	0.01	0.005	0.004	0.008	0.01	0.01
2-Day average <sup>a</sup>	363	42	0.003	0.002	0.004	0.006	0.006	0.003	0.002	0.004	0.006	0.006
<b>Children (5-&lt;9 years)</b>												
Day 1	569	69	0.004	0.003	0.005	0.01	0.01	0.004	0.003	0.005	0.01	0.01
Day 2	397	52	0.004	0.003	0.005	0.008	0.02	0.004	0.003	0.005	0.008	0.02
2-Day average <sup>a</sup>	501	89	0.002	0.002	0.003	0.005	0.02	0.002	0.002	0.003	0.005	0.02
<b>Children (9-&lt;16 years)</b>												
Day 1	908	103	0.003	0.002	0.004	0.008	0.02	0.003	0.002	0.004	0.008	0.02
Day 2	660	76	0.004	0.003	0.005	0.008	0.01	0.004	0.003	0.005	0.008	0.01
2-Day average <sup>a</sup>	843	144	0.002	0.002	0.002	0.004	0.008	0.002	0.002	0.002	0.004	0.008
<b>Youth (16-18 years)</b>												
Day 1	342	20	0.002	0.002	0.003	0.004	0.008	0.002	0.002	0.003	0.004	0.008
Day 2	222	13	0.003	0.002	0.003	0.009	0.009	0.003	0.002	0.003	0.009	0.009
2-Day average <sup>a</sup>	310	29	0.001	0.001	0.001	0.004	0.005	0.001	0.001	0.001	0.004	0.005

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of “eaters” in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of “eaters” per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A11.** FD&C Red No. 3: Estimated single and two-day cumulative daily exposure (mg/kg/day) in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements.

FD&C Red No. 3			Typical-exposure scenario (mg/kg/day)					High-exposure scenario (mg/kg/day)				
	Total n <sup>b</sup>	n <sup>c</sup>	Mean	Median	75th%	95th%	Max	Mean	Median	75th%	95th%	Max
<b>Pregnant women</b>												
Day 1	48	20	0.03	0.01	0.02	0.23	0.23	0.06	0.02	0.03	0.67	0.67
Day 2	31	18	0.02	0.02	0.03	0.04	0.07	0.02	0.02	0.03	0.05	0.07
2-Day average <sup>a</sup>	42	25	0.02	0.02	0.02	0.11	0.11	0.04	0.02	0.02	0.33	0.33
<b>Women 18-49 years</b>												
Day 1	1048	520	0.03	0.01	0.03	0.08	2.82	0.04	0.01	0.04	0.08	8.36
Day 2	792	396	0.03	0.01	0.03	0.10	2.09	0.04	0.02	0.04	0.10	2.43
2-Day average <sup>a</sup>	1040	592	0.02	0.007	0.02	0.07	1.41	0.02	0.009	0.02	0.08	4.18
<b>Children (0-&lt;2 years)</b>												
Day 1	177	72	0.03	0.02	0.05	0.09	0.20	0.03	0.02	0.05	0.11	0.20
Day 2	131	53	0.54	0.01	0.03	4.83	14.9	1.50	0.01	0.05	7.90	44.0
2-Day average <sup>a</sup>	186	84	0.17	0.008	0.03	0.07	7.43	0.47	0.008	0.03	0.07	22.0
<b>Children (2-&lt;5 years)</b>												
Day 1	388	200	0.19	0.01	0.03	0.19	10.3	0.49	0.01	0.04	0.19	30.4
Day 2	300	126	0.06	0.02	0.03	0.16	3.98	0.08	0.02	0.05	0.17	6.51
2-Day average <sup>a</sup>	363	214	0.07	0.008	0.022	0.09	5.14	0.17	0.009	0.03	0.09	15.2
<b>Children (5-&lt;9 years)</b>												
Day 1	569	320	0.06	0.009	0.03	0.11	2.92	0.11	0.01	0.04	0.14	4.77
Day 2	397	209	0.11	0.01	0.03	0.20	4.23	0.17	0.01	0.04	0.21	6.91
2-Day average <sup>a</sup>	501	349	0.06	0.007	0.02	0.12	2.11	0.10	0.009	0.03	0.23	4.46
<b>Children (9-&lt;16 years)</b>												
Day 1	908	456	0.09	0.008	0.02	0.16	12.7	0.20	0.01	0.03	0.32	37.7
Day 2	660	303	0.09	0.01	0.02	0.14	2.82	0.15	0.01	0.05	0.14	8.34
2-Day average <sup>a</sup>	843	536	0.06	0.007	0.02	0.16	6.36	0.11	0.009	0.03	0.42	18.8
<b>Youth (16-18 years)</b>												
Day 1	342	130	0.05	0.006	0.02	0.21	0.96	0.07	0.007	0.03	0.21	1.82
Day 2	222	99	0.02	0.007	0.02	0.06	0.12	0.02	0.01	0.03	0.08	0.13
2-Day average <sup>a</sup>	310	162	0.02	0.004	0.01	0.05	0.36	0.02	0.006	0.02	0.06	0.93

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of "eaters" in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of "eaters" per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A12.** FD&C Red No.40: Estimated single and two-day cumulative daily exposure (mg/kg/day) in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements.

			Typical-exposure scenario (mg/kg/day)					High-exposure scenario (mg/kg/day)				
	Total n <sup>b</sup>	n <sup>c</sup>	Mean	Median	75th%	95th%	Max	Mean	Median	75th%	95th%	Max
<b>Pregnant women</b>												
Day 1	48	44	0.14	0.04	0.23	0.53	0.74	0.26	0.07	0.26	1.38	2.12
Day 2	31	27	0.08	0.01	0.14	0.31	0.46	0.24	0.03	0.30	1.72	2.24
2-Day average <sup>a</sup>	42	39	0.09	0.03	0.12	0.52	0.52	0.21	0.06	0.32	0.69	2.18
<b>Women 18-49 years</b>												
Day 1	1048	982	0.11	0.05	0.16	0.37	1.81	0.23	0.08	0.28	0.91	3.85
Day 2	792	722	0.10	0.05	0.15	0.35	1.62	0.26	0.08	0.26	1.20	13.6
2-Day average <sup>a</sup>	1040	979	0.08	0.04	0.11	0.28	1.02	0.19	0.06	0.25	0.70	7.17
<b>Children (0-&lt;2 years)</b>												
Day 1	177	166	0.29	0.13	0.41	1.01	2.91	0.57	0.22	0.61	2.65	7.35
Day 2	131	121	0.25	0.12	0.25	1.00	2.58	0.51	0.17	0.57	2.11	18.4
2-Day average <sup>a</sup>	186	175	0.20	0.08	0.28	0.90	1.45	0.40	0.11	0.58	1.69	0.24
<b>Children (2-&lt;5 years)</b>												
Day 1	388	366	0.30	0.16	0.44	0.91	4.40	0.66	0.23	0.81	3.28	9.80
Day 2	300	265	0.30	0.18	0.41	0.92	3.01	0.73	0.32	0.80	3.02	7.88
2-Day average <sup>a</sup>	363	352	0.23	0.13	0.31	0.75	3.06	0.52	0.25	0.67	2.04	5.24
<b>Children (5-&lt;9 years)</b>												
Day 1	569	550	0.30	0.21	0.43	0.91	2.05	0.71	0.39	0.92	2.51	6.82
Day 2	397	378	0.26	0.17	0.33	0.79	2.08	0.73	0.27	0.73	2.97	15.4
2-Day average <sup>a</sup>	501	491	0.23	0.17	0.34	0.73	1.94	0.60	0.32	0.79	2.13	9.03
<b>Children (9-&lt;16 years)</b>												
Day 1	908	860	0.20	0.14	0.26	0.63	3.30	0.52	0.25	0.57	2.05	8.93
Day 2	660	622	0.20	0.13	0.28	0.68	1.57	0.56	0.23	0.55	2.72	6.25
2-Day average <sup>a</sup>	843	822	0.16	0.11	0.24	0.51	1.23	0.44	0.23	0.52	1.63	6.39
<b>Youth (16-18 years)</b>												
Day 1	342	315	0.13	0.08	0.19	0.43	1.66	0.30	0.12	0.35	1.18	6.06
Day 2	222	201	0.11	0.05	0.13	0.35	0.89	0.28	0.07	0.29	1.08	6.33
2-Day average <sup>a</sup>	310	301	0.09	0.05	0.13	0.29	0.86	0.21	0.08	0.27	0.82	3.17

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of "eaters" in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of "eaters" per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A13.** FD&C Yellow No. 5: Estimated single and two-day cumulative daily exposure (mg/kg/day) in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements.

FD&C Yellow No. 5			Typical-exposure scenario (mg/kg/day)					High-exposure scenario (mg/kg/day)				
	Total n <sup>b</sup>	n <sup>c</sup>	Mean	Median	75th%	95th%	Max	Mean	Median	75th%	95th%	Max
<b>Pregnant women</b>												
Day 1	48	42	0.05	0.02	0.04	0.15	1.12	0.07	0.04	0.09	0.23	1.13
Day 2	31	29	0.03	0.02	0.03	0.05	0.28	0.05	0.02	0.05	0.21	0.29
2-Day average <sup>a</sup>	42	36	0.03	0.02	0.04	0.09	0.15	0.05	0.03	0.09	0.14	0.24
<b>Women 18-49 years</b>												
Day 1	1048	947	0.05	0.02	0.06	0.16	1.14	0.08	0.04	0.10	0.29	2.20
Day 2	792	715	0.05	0.02	0.05	0.18	0.63	0.08	0.03	0.09	0.28	1.56
2-Day average <sup>a</sup>	1040	973	0.03	0.02	0.05	0.13	0.57	0.06	0.03	0.08	0.20	1.10
<b>Children (0-&lt;2 years)</b>												
Day 1	177	169	0.13	0.07	0.17	0.42	1.36	0.22	0.12	0.27	0.78	2.52
Day 2	131	121	0.19	0.08	0.21	0.76	1.71	0.27	0.14	0.32	1.02	2.06
2-Day average <sup>a</sup>	186	176	0.12	0.06	0.14	0.45	1.18	0.19	0.10	0.21	0.76	1.87
<b>Children (2-&lt;5 years)</b>												
Day 1	388	375	0.14	0.06	0.15	0.56	1.85	0.23	0.11	0.28	0.80	3.48
Day 2	300	286	0.16	0.09	0.17	0.58	2.31	0.25	0.13	0.27	0.85	4.35
2-Day average <sup>a</sup>	363	353	0.12	0.07	0.15	0.39	2.08	0.19	0.11	0.23	0.51	3.92
<b>Children (5-&lt;9 years)</b>												
Day 1	569	548	0.11	0.06	0.13	0.38	1.58	0.18	0.10	0.23	0.66	4.08
Day 2	397	381	0.11	0.05	0.13	0.46	1.62	0.18	0.08	0.22	0.60	3.22
2-Day average <sup>a</sup>	501	495	0.09	0.05	0.12	0.31	1.33	0.15	0.09	0.22	0.48	3.02
<b>Children (9-&lt;16 years)</b>												
Day 1	908	846	0.09	0.04	0.11	0.35	3.60	0.17	0.06	0.19	0.65	5.43
Day 2	660	627	0.08	0.04	0.08	0.33	0.88	0.14	0.06	0.16	0.56	2.35
2-Day average <sup>a</sup>	843	816	0.07	0.04	0.08	0.26	1.15	0.12	0.06	0.14	0.40	2.03
<b>Youth (16-18 years)</b>												
Day 1	342	302	0.06	0.03	0.08	0.20	1.19	0.10	0.04	0.12	0.34	2.25
Day 2	222	206	0.05	0.03	0.06	0.17	0.36	0.08	0.04	0.11	0.26	0.73
2-Day average <sup>a</sup>	310	294	0.04	0.02	0.10	0.12	2.08	0.07	0.04	0.09	0.27	1.31

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of “eaters” in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of “eaters” per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A14.** FD&C Yellow No. 6: Estimated single and two-day cumulative daily exposure (mg/kg/day) in US women and children based on two-day NHANES 2015-16 food consumption data and FDA food dye measurements.

FD&C Yellow No. 6			Typical-exposure scenario (mg/kg/day)					High-exposure scenario (mg/kg/day)				
	Total n <sup>b</sup>	n <sup>c</sup>	Mean	Median	75th%	95th%	Max	Mean	Median	75th%	95th%	Max
<b>Pregnant women</b>												
Day 1	48	39	0.05	0.01	0.07	0.18	0.32	0.07	0.02	0.11	0.30	0.40
Day 2	31	27	0.03	0.008	0.02	0.12	0.19	0.04	0.01	0.04	0.20	0.32
2-Day average <sup>a</sup>	42	37	0.03	0.01	0.04	0.12	0.21	0.05	0.01	0.05	0.21	0.28
<b>Women 18-49 years</b>												
Day 1	1048	898	0.06	0.01	0.08	0.29	0.96	0.08	0.02	0.11	0.37	3.60
Day 2	792	692	0.05	0.01	0.06	0.20	1.09	0.07	0.01	0.09	0.28	1.67
2-Day average <sup>a</sup>	1040	933	0.04	0.01	0.06	0.18	0.68	0.06	0.02	0.08	0.26	1.85
<b>Children (0-&lt;2 years)</b>												
Day 1	177	160	0.14	0.06	0.18	0.50	1.46	0.22	0.08	0.25	0.87	3.11
Day 2	131	120	0.20	0.08	0.22	0.72	3.96	0.47	0.10	0.35	0.94	19.0
2-Day average <sup>a</sup>	186	170	0.13	0.07	0.16	0.42	2.07	0.26	0.09	0.21	0.75	9.64
<b>Children (2-&lt;5 years)</b>												
Day 1	388	359	0.18	0.06	0.22	0.84	2.88	0.35	0.09	0.32	1.10	13.4
Day 2	300	276	0.16	0.08	0.20	0.54	2.02	0.23	0.10	0.28	0.86	2.21
2-Day average <sup>a</sup>	363	353	0.14	0.07	0.17	0.48	1.58	0.22	0.10	0.24	0.69	6.85
<b>Children (5-&lt;9 years)</b>												
Day 1	569	539	0.15	0.08	0.21	0.51	1.85	0.23	0.11	0.31	0.84	1.96
Day 2	397	376	0.11	0.05	0.14	0.47	1.11	0.16	0.07	0.21	0.64	1.93
2-Day average <sup>a</sup>	501	493	0.11	0.06	0.17	0.37	0.93	0.16	0.09	0.25	0.60	1.11
<b>Children (9-&lt;16 years)</b>												
Day 1	908	837	0.11	0.05	0.16	0.36	3.48	0.18	0.07	0.23	0.56	16.4
Day 2	660	619	0.09	0.03	0.12	0.35	1.05	0.13	0.05	0.18	0.44	3.60
2-Day average <sup>a</sup>	843	816	0.08	0.05	0.11	0.28	1.86	0.12	0.07	0.17	0.37	8.37
<b>Youth (16-18 years)</b>												
Day 1	342	299	0.07	0.02	0.10	0.26	0.97	0.10	0.03	0.15	0.39	1.24
Day 2	222	202	0.05	0.02	0.06	0.22	0.50	0.08	0.02	0.11	0.32	0.83
2-Day average <sup>a</sup>	310	291	0.04	0.02	0.06	0.17	0.58	0.06	0.02	0.09	0.26	0.65

<sup>a</sup>The “two-day average” estimates include individuals who completed both the “Day 1” and “Day 2” NHANES food consumption questionnaires.

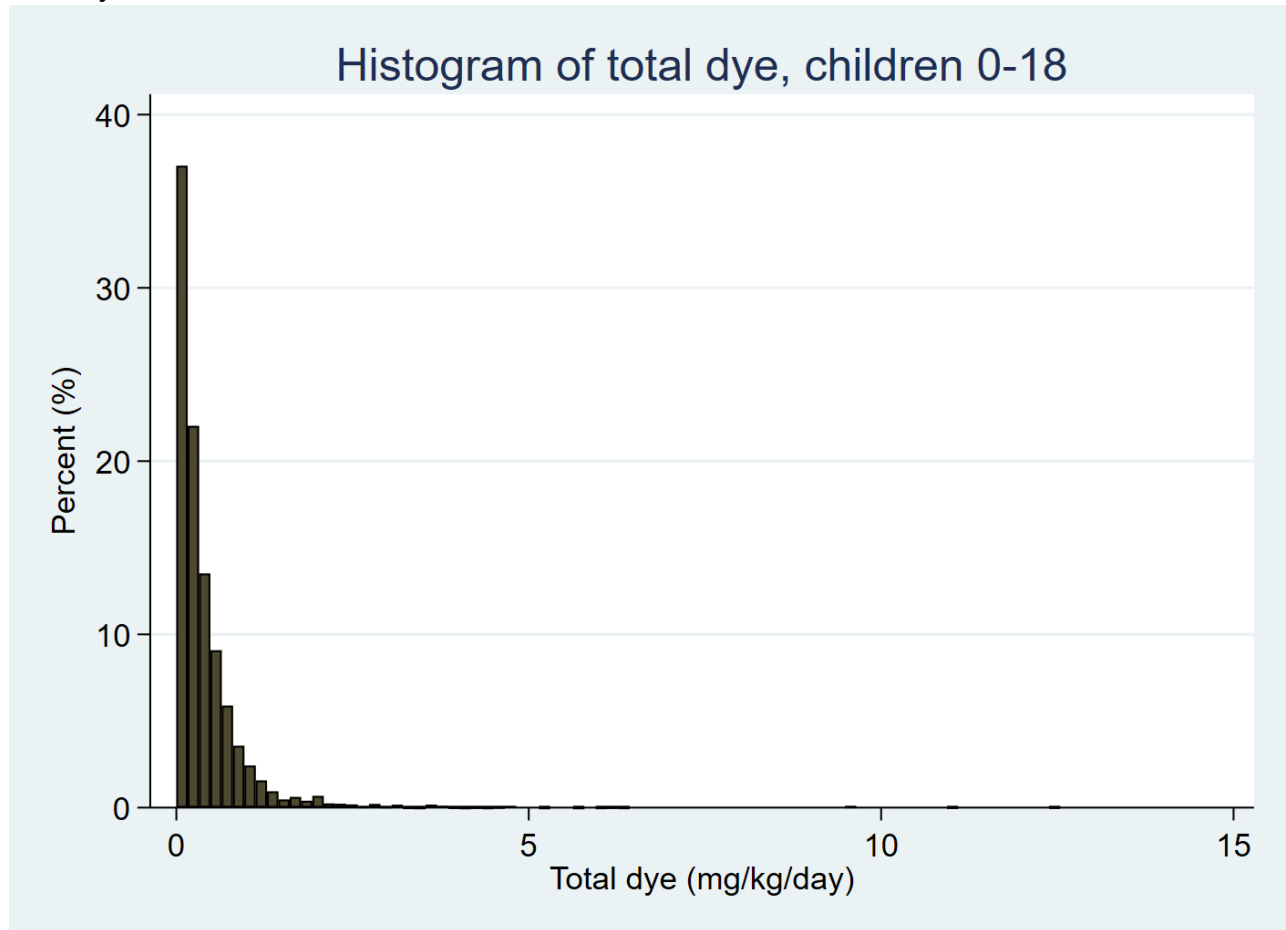
<sup>b</sup>Total n=number of "eaters" in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of "eaters" per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

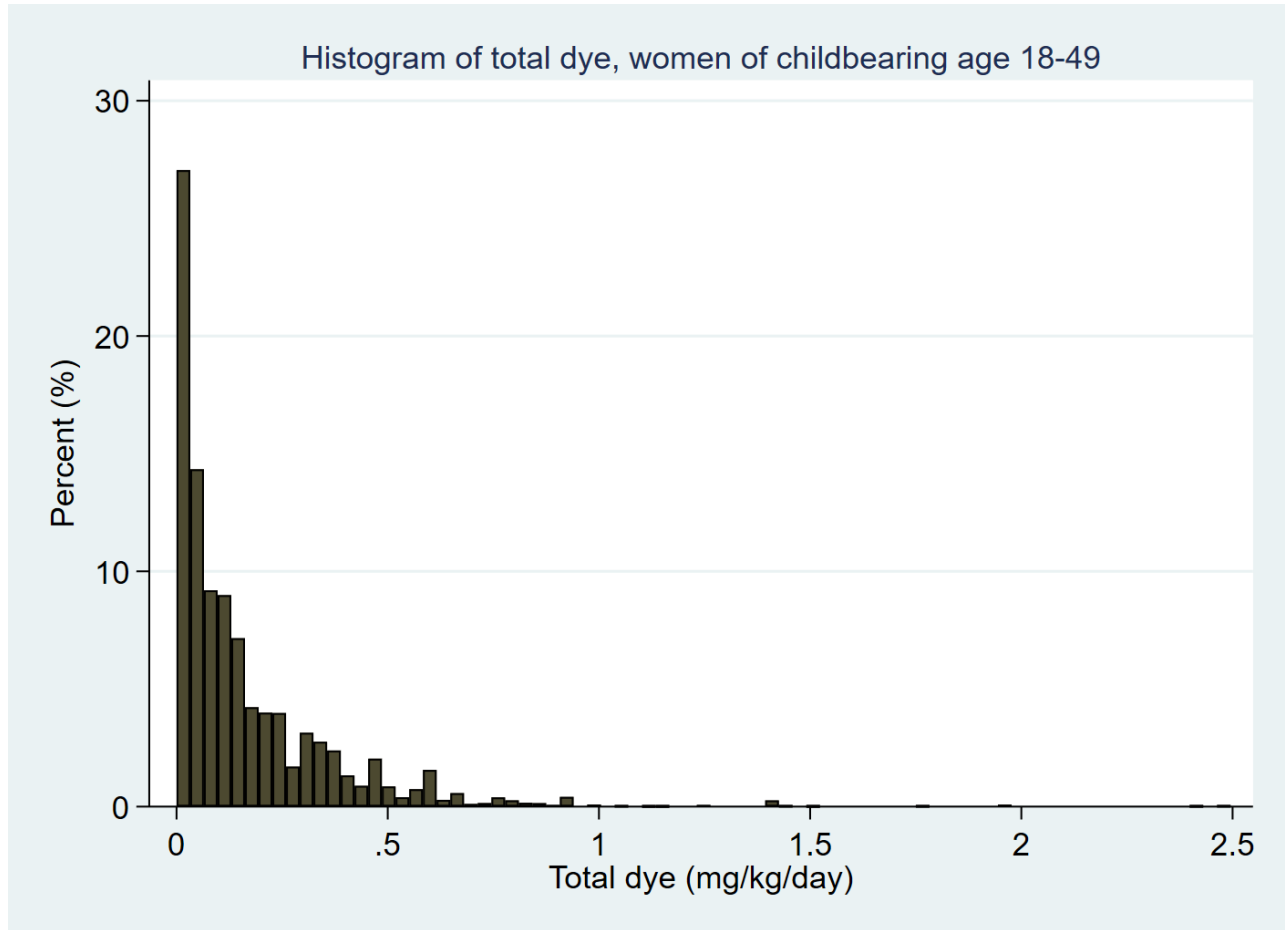
Distributions of total FD&C food dye daily consumption estimates (mg/kg/day; “eaters only”) (Typical-exposure scenario) in children and women of childbearing age.

**Figure A1.** Total Dye (mg/kg/day) in children 0-18 years.

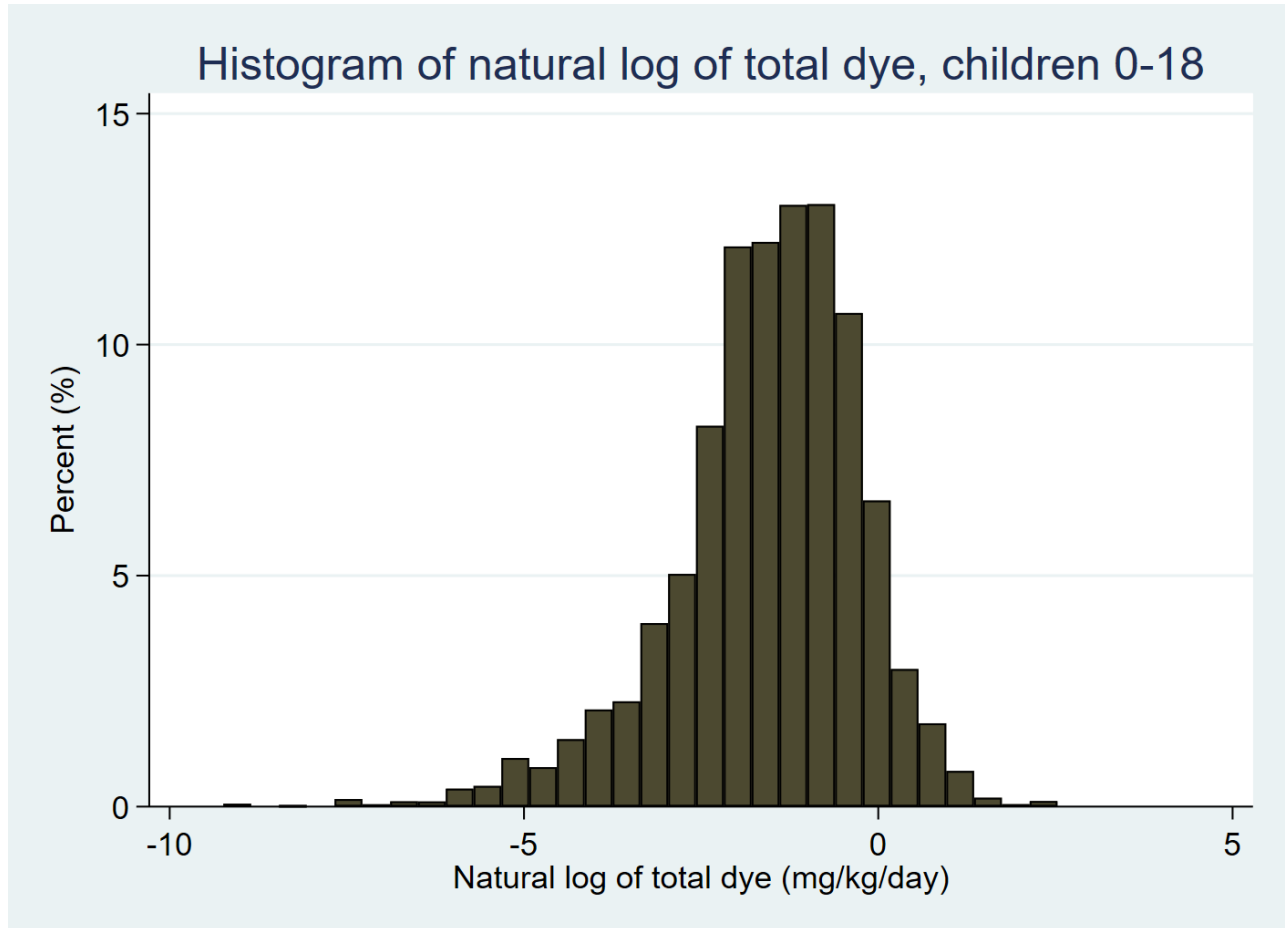
Figure A1 is a histogram of the total FD&C synthetic food dye intake for children age 0 to 18 years. The x axis is dose in mg/kg/day of the total dyes and the y axis is percent of children. The majority of children consume less than about 3 mg/kg/day total synthetic food dyes in foods.



**Figure A2.** Total Dye (mg/kg/day) in WCBA, 18-49 years.

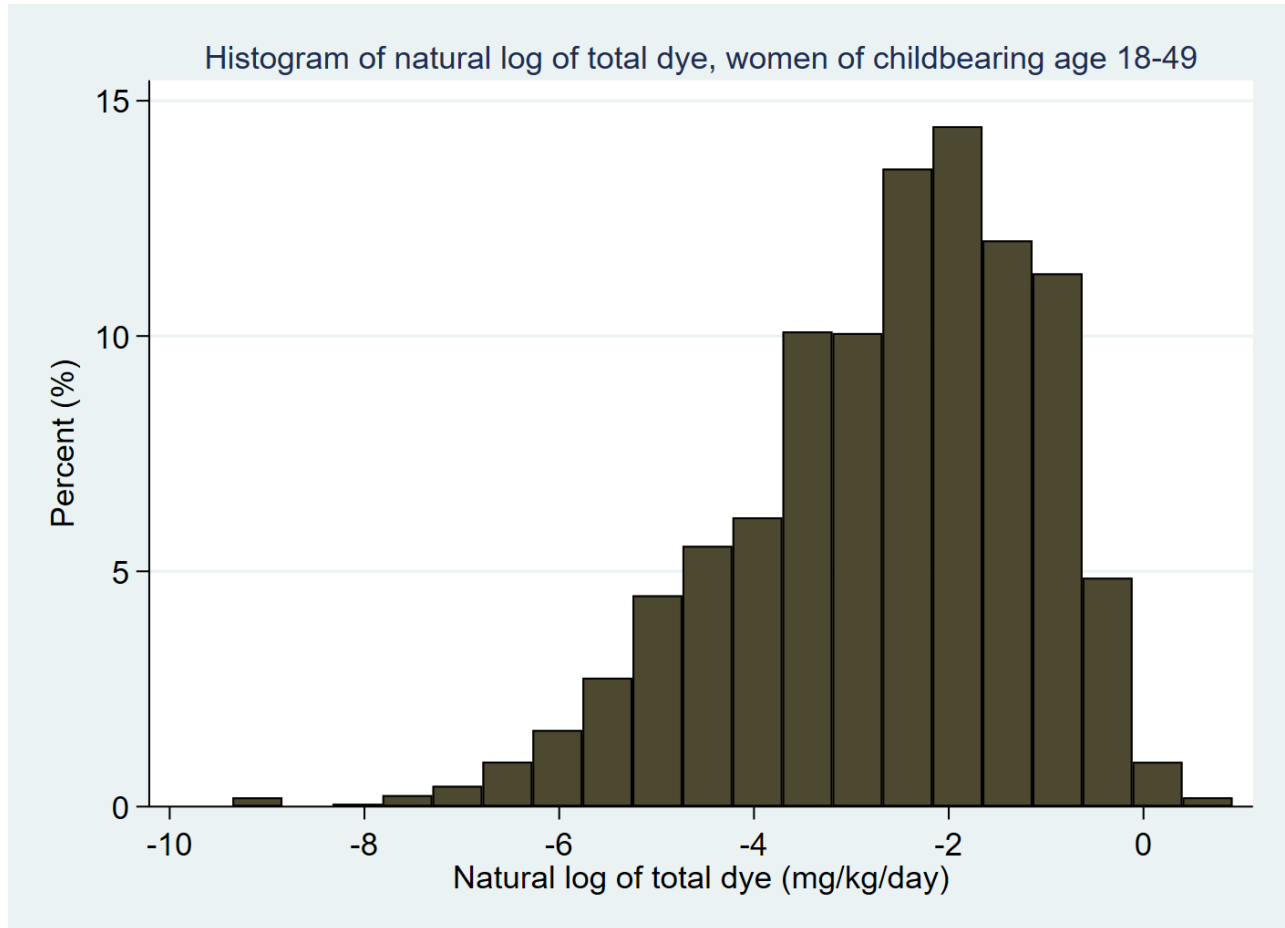


**Figure A3.** Total dye (mg/kg/day) log-transformed, in children 0-18 years.





**Figure A4.** Total dye (mg/kg/day) log-transformed, in WCBA 18-49 years.



**Table A15. Unweighted Estimated FD&C Blue No. 1 intake (mg/kg/day) for pregnant women, women of childbearing years (18-49 years), and children (<=18 years). [NHANES weighting not used to calculate values in table]**

FD&C Blue No. 1			Typical-exposure scenario			High-exposure scenario		
	Total n <sup>b</sup>	n <sup>c</sup>	Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%	Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%
<b>Pregnant women</b>								
Day 1	48	44	0.01	0.01	0.04	0.03	0.02	0.10
Day 2	31	25	0.02	0.02	0.05	0.03	0.03	0.06
2-Day average <sup>a</sup>	42	39	0.01	0.009	0.03	0.02	0.02	0.08
<b>Women 18-49 years</b>								
Day 1	1048	933	0.02	0.009	0.06	0.03	0.02	0.10
Day 2	792	671	0.02	0.01	0.07	0.04	0.02	0.11
2-Day average <sup>a</sup>	1040	946	0.01	0.007	0.05	0.03	0.01	0.08
<b>Children (0-&lt;2 years)</b>								
Day 1	177	151	0.05	0.03	0.15	0.09	0.05	0.28
Day 2	131	113	0.11	0.02	0.25	0.38	0.05	0.61
2-Day average	186	163	0.06	0.02	0.14	0.16	0.04	0.26
<b>Children (2-&lt;5 years)</b>								
Day 1	388	353	0.08	0.03	0.24	0.21	0.06	0.41
Day 2	300	259	0.07	0.03	0.19	0.12	0.07	0.40
2-Day average <sup>a</sup>	363	346	0.06	0.03	0.17	0.12	0.05	0.33
<b>Children (5-&lt;9 years)</b>								
Day 1	569	536	0.05	0.03	0.16	0.09	0.06	0.27
Day 2	397	374	0.06	0.02	0.18	0.10	0.06	0.33
2-Day average <sup>a</sup>	501	487	0.04	0.02	0.16	0.08	0.05	0.27
<b>Children (9-&lt;16 years)</b>								
Day 1	908	822	0.04	0.02	0.10	0.11	0.04	0.20
Day 2	660	598	0.03	0.01	0.09	0.07	0.03	0.18
2-Day average <sup>a</sup>	843	801	0.03	0.01	0.10	0.07	0.03	0.16
<b>Youth (16-18 years)</b>								
Day 1	342	286	0.02	0.01	0.08	0.05	0.02	0.15
Day 2	222	194	0.02	0.01	0.05	0.03	0.02	0.10
2-Day average <sup>a</sup>	310	288	0.01	0.007	0.05	0.03	0.02	0.09

<sup>a</sup>The Two-Day average estimates include individuals who completed both the Day 1 and Day 2 NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of "eaters" in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of "eaters" per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A16. Unweighted Estimated FD&C Blue No. 2 intake (mg/kg/day) for pregnant women, women of childbearing years (18-49 years), and children (<=18 years).**

**[NHANES weighting not used to calculate values in table]**

FD&C Blue No. 2	Total n <sup>b</sup>	n <sup>c</sup>	Typical-exposure scenario			High-exposure scenario		
			Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%	Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%
<b>Pregnant women</b>								
Day 1	48	23	0.007	0.002	0.03	0.02	0.003	0.10
Day 2	31	18	0.009	0.003	0.04	0.02	0.005	0.10
2 -Day average <sup>a</sup>	42	25	0.006	0.002	0.03	0.01	0.004	0.07
<b>Women 18-49 years</b>								
Day 1	1048	566	0.007	0.002	0.03	0.01	0.004	0.05
Day 2	792	426	0.009	0.003	0.04	0.02	0.004	0.08
2 -Day average <sup>a</sup>	1040	645	0.006	0.002	0.02	0.01	0.003	0.05
<b>Children (0-&lt;2 years)</b>								
Day 1	177	91	0.04	0.01	0.12	0.05	0.01	0.28
Day 2	131	68	0.04	0.008	0.20	0.09	0.009	0.47
2 -Day average <sup>a</sup>	186	108	0.03	0.007	0.11	0.04	0.007	0.18
<b>Children (2-&lt;5 years)</b>								
Day 1	388	227	0.03	0.006	0.10	0.06	0.007	0.24
Day 2	300	155	0.04	0.01	0.14	0.06	0.02	0.25
2 -Day average <sup>a</sup>	363	235	0.02	0.009	0.09	0.04	0.01	0.16
<b>Children (5-&lt;9 years)</b>								
Day 1	569	341	0.02	0.007	0.09	0.04	0.009	0.19
Day 2	397	232	0.03	0.01	0.10	0.05	0.02	0.29
2 -Day average <sup>a</sup>	501	360	0.02	0.008	0.06	0.03	0.05	0.15
<b>Children (9-&lt;16 years)</b>								
Day 1	908	500	0.02	0.005	0.06	0.04	0.007	0.14
Day 2	660	348	0.02	0.008	0.08	0.04	0.01	0.15
2 -Day average <sup>a</sup>	843	570	0.02	0.006	0.05	0.03	0.008	0.09
<b>Youth (16-18 years)</b>								
Day 1	342	159	0.01	0.002	0.06	0.02	0.003	0.11
Day 2	222	110	0.01	0.002	0.05	0.02	0.003	0.13
2 -Day average <sup>a</sup>	310	187	0.01	0.002	0.04	0.01	0.002	0.07

<sup>a</sup>The Two-Day average estimates include individuals who completed both the Day 1 and Day 2 NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of "eaters" in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of "eaters" per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A17. Unweighted Estimated FD&C Green No. 3 intake (mg/kg/day) for pregnant women, women of childbearing years (18-49 years), and children (<=18 years). [NHANES weighting not used to calculate values in table]**

FD&C Green No. 3			Typical-exposure scenario			High-exposure scenario		
	Total n <sup>b</sup>	n <sup>c</sup>	Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%	Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%
<b>Pregnant women</b>								
Day 1	48	3	0.003	0.002	0.002	0.002	0.002	0.002
Day 2	31	2	0.06	0.003	0.004	0.003	0.003	0.004
2-Day average <sup>a</sup>	42	4	0.001	0.001	0.003	0.001	0.001	0.003
<b>Women 18-49 years</b>								
Day 1	1048	102	0.002	0.002	0.004	0.002	0.002	0.004
Day 2	792	73	0.002	0.002	0.005	0.002	0.002	0.005
2-Day average <sup>a</sup>	1040	145	0.001	0.001	0.003	0.001	0.001	0.003
<b>Children (0-&lt;2 years)</b>								
Day 1	177	13	0.003	0.002	0.007	0.003	0.002	0.007
Day 2	131	9	0.008	0.004	0.03	0.008	0.004	0.03
2-Day average <sup>a</sup>	186	17	0.003	0.002	0.01	0.003	0.002	0.01
<b>Children (2-&lt;5 years)</b>								
Day 1	388	32	0.005	0.004	0.01	0.005	0.004	0.010
Day 2	300	25	0.005	0.004	0.01	0.005	0.004	0.012
2-Day average <sup>a</sup>	363	42	0.003	0.002	0.006	0.003	0.002	0.006
<b>Children (5-&lt;9 years)</b>								
Day 1	569	69	0.004	0.003	0.01	0.004	0.003	0.010
Day 2	397	52	0.005	0.004	0.009	0.005	0.004	0.009
2-Day average <sup>a</sup>	501	89	0.002	0.002	0.005	0.002	0.002	0.005
<b>Children (9-&lt;16 years)</b>								
Day 1	908	103	0.003	0.002	0.008	0.003	0.002	0.008
Day 2	660	76	0.003	0.003	0.008	0.003	0.003	0.008
2-Day average <sup>a</sup>	843	144	0.002	0.001	0.004	0.002	0.001	0.004
<b>Youth (16-18 years)</b>								
Day 1	342	20	0.002	0.002	0.006	0.002	0.002	0.006
Day 2	222	13	0.004	0.002	0.009	0.004	0.002	0.009
2-Day average <sup>a</sup>	310	29	0.002	0.001	0.004	0.002	0.001	0.004

<sup>a</sup>The Two-Day average estimates include individuals who completed both the Day 1 and Day 2 NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of "eaters" in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of "eaters" per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A18. Unweighted Estimated FD&C Red No. 3 intake (mg/kg/day) for pregnant women, women of childbearing years (18-49 years), and children (<=18 years). [NHANES weighting not used to calculate values in table]**

FD&C Red No. 3			Typical-exposure scenario			High-exposure scenario		
	Total n <sup>b</sup>	n <sup>c</sup>	Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%	Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%
<b>Pregnant women</b>								
Day 1	48	20	0.03	0.01	0.14	0.05	0.02	0.36
Day 2	31	18	0.02	0.02	0.07	0.02	0.02	0.07
2-Day average <sup>a</sup>	42	25	0.02	0.01	0.05	0.03	0.01	0.05
<b>Women 18-49 years</b>								
Day 1	1048	520	0.03	0.01	0.08	0.05	0.02	0.08
Day 2	792	396	0.04	0.01	0.10	0.06	0.02	0.10
2-Day average <sup>a</sup>	1040	592	0.03	0.008	0.08	0.04	0.01	0.08
<b>Children (0-&lt;2 years)</b>								
Day 1	177	72	0.03	0.01	0.09	0.03	0.02	0.13
Day 2	131	53	0.51	0.01	4.83	1.33	0.01	7.90
2-Day average <sup>a</sup>	186	84	0.17	0.008	0.09	0.43	0.01	0.11
<b>Children (2-&lt;5 years)</b>								
Day 1	388	200	0.21	0.01	0.29	0.49	0.01	0.29
Day 2	300	126	0.14	0.02	0.23	0.23	0.02	0.25
2-Day average <sup>a</sup>	363	214	0.10	0.009	0.19	0.20	0.01	0.23
<b>Children (5-&lt;9 years)</b>								
Day 1	569	320	0.08	0.01	0.14	0.12	0.01	0.16
Day 2	397	209	0.16	0.01	1.24	0.25	0.02	2.03
2-Day average <sup>a</sup>	501	349	0.08	0.008	0.30	0.12	0.01	0.31
<b>Children (9-&lt;16 years)</b>								
Day 1	908	456	0.13	0.01	0.50	0.29	0.01	0.84
Day 2	660	303	0.09	0.01	0.14	0.16	0.01	0.20
2-Day average <sup>a</sup>	843	536	0.07	0.006	0.42	0.16	0.008	0.80
<b>Youth (16-18 years)</b>								
Day 1	342	130	0.05	0.006	0.21	0.07	0.006	0.21
Day 2	222	99	0.02	0.006	0.07	0.02	0.009	0.10
2-Day average <sup>a</sup>	310	162	0.02	0.004	0.06	0.03	0.004	0.07

<sup>a</sup>The Two-Day average estimates include individuals who completed both the Day 1 and Day 2 NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of "eaters" in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of "eaters" per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A19. Unweighted Estimated FD&C Red No. 40 intake (mg/kg/day) for pregnant women, women of childbearing years (18-49 years), and children (<=18 years). [NHANES weighting not used to calculate values in table]**

FD&C Red No. 40			Typical-exposure scenario			High-exposure scenario		
	Total n <sup>b</sup>	n <sup>c</sup>	Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%	Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%
<b>Pregnant women</b>								
Day 1	48	44	0.13	0.05	0.47	0.28	0.07	1.4
Day 2	31	27	0.10	0.04	0.31	0.29	0.11	1.7
2-Day average <sup>a</sup>	42	39	0.09	0.04	0.34	0.24	0.08	0.87
<b>Women 18-49 years</b>								
Day 1	1048	982	0.11	0.05	0.37	0.25	0.08	0.97
Day 2	792	722	0.11	0.04	0.40	0.28	0.07	1.2
2-Day average <sup>a</sup>	1040	979	0.08	0.04	0.30	0.21	0.07	0.86
<b>Children (0-&lt;2 years)</b>								
Day 1	177	166	0.28	0.12	1.1	0.60	0.22	2.6
Day 2	131	121	0.32	0.12	1.6	0.79	0.19	2.8
2-Day average <sup>a</sup>	186	175	0.22	0.09	0.99	0.50	0.13	2.0
<b>Children (2-&lt;5 years)</b>								
Day 1	388	366	0.32	0.19	0.93	0.72	0.29	2.9
Day 2	300	265	0.33	0.20	1.2	0.80	0.33	3.0
2-Day average <sup>a</sup>	363	352	0.26	0.15	0.81	0.59	0.30	2.2
<b>Children (5-&lt;9 years)</b>								
Day 1	569	550	0.31	0.21	1.0	0.74	0.39	2.7
Day 2	397	378	0.29	0.18	1.0	0.78	0.28	3.1
2-Day average <sup>a</sup>	501	491	0.25	0.17	0.75	0.63	0.32	2.1
<b>Children (9-&lt;16 years)</b>								
Day 1	908	860	0.21	0.13	0.69	0.55	0.24	2.1
Day 2	660	622	0.19	0.12	0.64	0.53	0.21	2.3
2-Day average <sup>a</sup>	843	822	0.16	0.11	0.49	0.44	0.22	1.6
<b>Youth (16-18 years)</b>								
Day 1	342	315	0.15	0.09	0.45	0.36	0.14	1.4
Day 2	222	201	0.12	0.06	0.44	0.38	0.10	1.6
2-Day average <sup>a</sup>	310	301	0.10	0.06	0.31	0.27	0.10	1.0

<sup>a</sup>The Two-Day average estimates include individuals who completed both the Day 1 and Day 2 NHANES food consumption questionnaires. <sup>b</sup>Total n=number of "eaters" in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of "eaters" per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A20. Unweighted Estimated FD&C Yellow No. 5 intake (mg/kg/day) for pregnant women, women of childbearing years (18-49 years), and children (<=18 years). [NHANES weighting not used to calculate values in table]**

FD&C Yellow No. 5			Typical-exposure scenario			High-exposure scenario		
	Total n <sup>b</sup>	n <sup>c</sup>	Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%	Dose Estimates (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%
<b>Pregnant women</b>								
Day 1	48	42	0.07	0.03	0.14	0.10	0.04	0.23
Day 2	31	29	0.04	0.03	0.15	0.06	0.03	0.23
2-Day average <sup>a</sup>	42	36	0.04	0.02	0.12	0.06	0.03	0.22
<b>Women 18-49 years</b>								
Day 1	1048	947	0.05	0.02	0.17	0.08	0.04	0.32
Day 2	792	715	0.05	0.02	0.17	0.08	0.04	0.30
2-Day average <sup>a</sup>	1040	973	0.04	0.02	0.14	0.06	0.03	0.22
<b>Children (0-&lt;2 years)</b>								
Day 1	177	169	0.13	0.07	0.45	0.21	0.11	0.78
Day 2	131	121	0.18	0.08	0.73	0.29	0.14	1.16
2-Day average <sup>a</sup>	186	176	0.11	0.06	0.43	0.18	0.09	0.63
<b>Children (2-&lt;5 years)</b>								
Day 1	388	375	0.16	0.08	0.60	0.25	0.13	0.82
Day 2	300	286	0.18	0.08	0.65	0.28	0.13	0.93
2-Day average <sup>a</sup>	363	353	0.14	0.07	0.44	0.21	0.12	0.73
<b>Children (5-&lt;9 years)</b>								
Day 1	569	548	0.12	0.07	0.41	0.20	0.11	0.68
Day 2	397	381	0.12	0.06	0.47	0.20	0.09	0.64
2-Day average <sup>a</sup>	501	495	0.10	0.05	0.34	0.16	0.10	0.50
<b>Children (9-&lt;16 years)</b>								
Day 1	908	846	0.09	0.04	0.35	0.17	0.06	0.65
Day 2	660	627	0.08	0.04	0.33	0.14	0.06	0.55
2-Day average <sup>a</sup>	843	816	0.07	0.04	0.25	0.12	0.06	0.40
<b>Youth (16-18 years)</b>								
Day 1	342	302	0.06	0.03	0.21	0.11	0.04	0.36
Day 2	222	206	0.05	0.02	0.19	0.09	0.03	0.37
2-Day average <sup>a</sup>	310	294	0.04	0.02	0.15	0.08	0.03	0.31

<sup>a</sup>The Two-Day average estimates include individuals who completed both the Day 1 and Day 2 NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of "eaters" in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of "eaters" per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.

**Table A21. Unweighted Estimated FD&C Yellow No. 6 intake (mg/kg/day) for pregnant women, women of childbearing years (18-49 years), and children (<=18 years). [NHANES weighting not used to calculate values in table]**

FD&C Yellow No. 6	Total n <sup>b</sup>	n <sup>c</sup>	Typical-exposure scenario			High-exposure scenario		
			Dose Estimate (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%	Dose Estimate (mg/kg/day) Mean	Dose Estimates (mg/kg/day) Median	Dose Estimates (mg/kg/day) 95th%
<b>Pregnant women</b>								
Day 1	48	39	0.06	0.02	0.25	0.09	0.02	0.39
Day 2	31	27	0.04	0.009	0.16	0.07	0.02	0.32
2-Day average <sup>a</sup>	42	37	0.04	0.02	0.16	0.07	0.02	0.26
<b>Women 18-49 years</b>								
Day 1	1048	898	0.06	0.01	0.24	0.09	0.02	0.35
Day 2	792	692	0.05	0.01	0.23	0.08	0.02	0.32
2-Day average <sup>a</sup>	1040	933	0.04	0.02	0.17	0.06	0.02	0.26
<b>Children (0-&lt;2 years)</b>								
Day 1	177	160	0.16	0.05	0.70	0.24	0.08	1.1
Day 2	131	120	0.20	0.07	0.74	0.46	0.10	1.3
2-Day average	186	170	0.13	0.06	0.49	0.26	0.08	0.84
<b>Children (2-&lt;5 years)</b>								
Day 1	388	359	0.19	0.07	0.82	0.36	0.10	1.23
Day 2	300	276	0.17	0.07	0.66	0.25	0.09	1.00
2-Day average <sup>a</sup>	363	353	0.14	0.07	0.52	0.24	0.11	0.80
<b>Children (5-&lt;9 years)</b>								
Day 1	569	539	0.15	0.08	0.53	0.24	0.11	0.88
Day 2	397	376	0.13	0.06	0.52	0.19	0.08	0.71
2-Day average <sup>a</sup>	501	493	0.12	0.07	0.37	0.17	0.10	0.62
<b>Children (9-&lt;16 years)</b>								
Day 1	908	837	0.12	0.06	0.38	0.20	0.08	0.59
Day 2	660	619	0.09	0.04	0.34	0.14	0.06	0.45
2-Day average <sup>a</sup>	843	816	0.08	0.05	0.28	0.14	0.07	0.40
<b>Youth (16-18 years)</b>								
Day 1	342	299	0.08	0.04	0.29	0.12	0.06	0.46
Day 2	222	202	0.07	0.02	0.27	0.10	0.03	0.41
2-Day average <sup>a</sup>	310	291	0.06	0.03	0.18	0.08	0.04	0.29

<sup>a</sup>The Two-Day average estimates include individuals who completed both the Day 1 and Day 2 NHANES food consumption questionnaires.

<sup>b</sup>Total n=number of "eaters" in NHANES within demographic category that consumed food containing any of the seven FD&C food dyes.

<sup>c</sup>n=number of "eaters" per dye category, i.e., number of individuals that ate one or more foods containing a particular food dye.



**Table A22.** Average daily child intake of FD&C Blue No. 2 (mg/kg/day) from recommended daily dosages of pain reliever/fever reducer tablets (three brands).

Child's age	Dosage	FD&C Blue No. 1 Average Dose Estimate (mg/kg/day)		FD&C Blue No. 2 Average Dose Estimate (mg/kg/day)		FD&C Blue No. 1 Average Dose Estimate (mg/kg/day)	
		Brand 1		Brand 2		Brand 3	
2-3 years	Minimum dosage	1 tablet/day	0.003	-	NC	1 tablet/day	0.0008
	Maximum recommended dosage	5 tablets/day	0.01	-	NC	4 tablets/day	0.003
4-5 years	Minimum dosage	1.5 tablets/day	0.003	-	NC	1.5 tablets/day	0.0008
	Maximum recommended dosage	7.5 tablets/day	0.02	-	NC	6 tablets/day	0.003
6-8 years	Minimum dosage	2 tablets/day	0.002	2 tablets/day	BDL	2 tablets/day	0.001
	Maximum recommended dosage	10 tablets/day	0.01	8 tablets/day	BDL	8 tablets/day	0.003
9-10 years	Minimum dosage	2.5 tablets/day	0.003	2.5 tablets/day	BDL	2.5 tablets/day	0.001
	Maximum recommended dosage	12.5 tablets/day	0.02	10 tablets/day	BDL	10 tablets/day	0.003
11 years	Minimum dosage	3 tablets/day	0.002	3 tablets/day	BDL	3 tablets/day	0.0006
	Maximum recommended dosage	15 tablets/day	0.010	12 tablets/day	BDL	12 tablets/day	0.002

NC: Not Calculated; Brand 2 is not recommended for children under 6 years old  
BDL: Below detection limit

Note, the following D&C dyes were listed on the labels of the pain reliever/fever reducer tablets: Brand 1, D&C Red No. 30 aluminum lake; Brand 2, D&C Red No. 30 aluminum lake; and Brand 3, D&C Red No. 27 aluminum lake.

**Table A23.** Average daily child intake of FD&C Blue No. 2 (mg/kg/day) from recommended daily dosages of allergy tablets (four brands).

Child's age	Dosage	FD&C Blue No. 2 Average Dose Estimate (mg/kg/day)		FD&C Blue No. 1 Average Dose Estimate (mg/kg/day)		FD&C Blue No. 2 Average Dose Estimate (mg/kg/day)		FD&C Blue No. 2 Average Dose Estimate (mg/kg/day)	
		Brand 1		Brand 2		Brand 3		Brand 4	
2-3 years	Minimum dosage	1 tablet/day	BDL	-	NC	1 tablet/day	BDL	1 tablet/day	BDL
	Maximum recommended dosage	1 tablet/day	BDL	-	NC	1 tablet/day	BDL	1 tablet/day	BDL
4-5 years	Minimum dosage	1 tablet/day	BDL	-	NC	1 tablet/day	BDL	1 tablet/day	BDL
	Maximum recommended dosage	1 tablet/day	BDL	-	NC	1 tablet/day	BDL	1 tablet/day	BDL
6-8 years	Minimum dosage	2 tablets/day	BDL	1-2 tablets/day	0.0004 - 0.0007	2 tablets/day	BDL	2 tablets/day	BDL
	Maximum recommended dosage	2 tablets/day	BDL	12 tablets/day	0.004	2 tablets/day	BDL	2 tablets/day	BDL
9-10 years	Minimum dosage	2 tablets/day	BDL	1-2 tablets/day	0.0004 - 0.0007	2 tablets/day	BDL	2 tablets/day	BDL
	Maximum recommended dosage	2 tablets/day	BDL	12 tablets/day	0.004	2 tablets/day	BDL	2 tablets/day	BDL
11 years	Minimum dosage	2 tablets/day	BDL	1-2 tablets/day	0.0002 - 0.0004	2 tablets/day	BDL	2 tablets/day	BDL
	Maximum recommended dosage	2 tablets/day	BDL	12 tablets/day	0.003	2 tablets/day	BDL	2 tablets/day	BDL

NC: Not Calculated; Brand 2 is not recommended for children under 6 years old.  
BDL: Below detection limit

**Table A24. UC Davis laboratory measurements of FD&C Blue No. 1, FD&C Red No. 3, FD&C Red No. 40, FD&C Yellow No. 5 and FD&C Yellow No. 6 measured in food (72 samples; mg/kg).**

Food category	Blue No. 1		Red No. 3		Red No. 40		Yellow No. 5		Yellow No. 6	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Breakfast Cereal	7.7	32.1	-	-	9.8	92.8	102.2	261.3	111.7	249.7
Decoration/Chips for Baking	40.4	120.5	45.7	173.9	1.9	80.2	105.5	106.9	64.6	69.4
Flavored Fruit Powder Drink	0.11	0.26	-	-	642.2	869.9	190.3	334.4	111.7	147
Frosting and Icings	18.7	393.6	6.5	93.3	9.9	10.5	6.1	6.4	1.7	1.8
Frozen Desserts	2.1	4.5	32.3	292.7	7.5	115.8	6	13.2	11.9	21.3
Ice Cream Cones	63.3	1049.1	32	312.9	243.8	313.6	533.1	635.3	242.2	299.2
Juice Drinks	0.09	8.98	-	-	16.2	82.6	5.1	9.8	-	-
Soft Drinks, Fruit Flavored	0.04	0.05	-	-	2.8	95.7	40.5	41.9	18.3	45.2
Snacks	0	64.4	-	-	1.7	191.3	0	185.6	0	131.4
Water Enhancers	40.9	167.3	-	-	652.3	777.9	696.6	711.7	-	-

“-”: food dye is not listed on product label; not measured.

**Table A25.** US FDA Food Dye Measurements in Food (mg/kg).<sup>a</sup>

Food category	FD&C Blue No. 1 <sup>b</sup>	FD&C Blue No. 2 <sup>b,c</sup>	FD&C Green No. 3 <sup>b,c</sup>	FD&C Red No. 3 <sup>b,c</sup>	FD&C Red No. 40 <sup>b</sup>	FD&C Yellow No. 5 <sup>b</sup>	FD&C Yellow No. 6 <sup>b</sup>
<b>Breakfast Cereal</b>	<1.0-63.1	< 1.0–41.5	< 1.0	<1.0-8.5	7.4-231.9	<1.0-147.2	<1.0-227.2
<b>Decoration/Chips for Baking</b>	<1.0-148.5	< 1.0–33.8	n.f.	7.7-183.2	<1.0-187.8	<1.0-338.0	8.1-171.6
<b>Frostings and icings</b>	<1.0-664.7	< 1.0–1283.2	n.f.	<1.0-562.8	<1.0-906.5	3.9-1,080.0	1.7-151.4
<b>Frozen desserts<sup>d</sup></b>	<1.0-17.1	< 1.0–16.5	< 1.0–1.0	<1.0-14.2	<1.0-633.9	<1.0-63.8	<1.0-54.9
<b>Ice Cream Cones</b>	139.8-232.6	n.f.	n.f.	244.0-1101.6	319.7	158.1	153.1
<b>Juice Drinks</b>	<1.0-8.8	n.f.	n.f.	n.f.	<1.0-65.6	<1.0-45.3	<1.0-33.8
<b>Soft drinks</b>	<1.0-8.1	n.f.	n.f.	n.f.	1.8-69.9	1.6-37.0	2.2-33.7
<b>Snack Foods</b>	3.1	< 1.0–1.7	n.f.	n.f.	<1.0-201.7	6.6-14.5	<1.0-150.2
<b>Flavored Water/Enhancers</b>	0.1-0.8	n.f.	n.f.	n.f.	4.0-39.7	0.7-12.5	2.0-14.3

<sup>a</sup>Adapted from Doell et al. 2016.<sup>1</sup>

<sup>b</sup>A value of < 1.0 mg kg<sup>-1</sup> indicates that a particular FD&C color additive was listed on the label for a food in that food category, but the results for that color additive were below the LOD. Therefore, the color additive was presumed to be present in the food at the LOD (i.e., 1.0 mg kg<sup>-1</sup>).

<sup>c</sup>n.f. Not found. This FD&C color additive was not listed on the label for any foods in this food category and was not detected at the LOD.

<sup>d</sup>Frozen desserts includes Ice Cream, Frozen Yogurt, Sherbet (including Bars, Sticks, Sandwiches).

<sup>1</sup>Doell DL, Folmer DE, Lee HS, Butts KM, Carberry SE. 2016. “Exposure estimate for FD&C colour additives for the US population”. Food Addit Contam Part A Chem Analy Control Expo Risk Assess 33(5):782-797.